A quarterly electronic publication from the

NASA Scientific and Technical Information (STI) Program

July 2000

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STI Attends NATO's Research and Technology Organization (RTO) Meeting

One NASA representative and one representative from the NASA Center for AeroSpace Information (CASI) attended the recent meeting in Lisbon, Spain, on Information Policy and Publications and Information Management. Sessions included strategic planning, new projects, electronic publishing, and RTO's new method of disseminating its publications via its webpage. The RTO webpage is http://www.rta.nato.int. Publications can be accessed via ftp://www.rta.nato.int/PubFullText/. Other public documents can be accessed via ftp://www.rta.nato.int/Documents. NASA CASI has been providing RTO documents to US RTO participants on a gratis basis; however, beginning July 1, 2000, U.S. participants can access documents free via the RTO webpages or obtain hard copies, fiche, or CD-ROM copies on a charge-back basis from CASI. NASA is currently the U.S. sales and distribution agency for RTO's unlimited and unclassified documents.

NASA Image eXchange (NIX) Assists Disney

Bill von Ofenheim, the technical lead for NIX, gave a presentation entitled "NIX: Past, Present, Future" at Disney Corporate in Burbank, California, at the request of Disney. The Media Asset Management team at Disney provided invitational travel. The presentation included technical details of the current implementation of NIX and an analysis of technologies to be applied to possible future NIX versions. NASA and Disney plan to continue exchanges as Disney refines their requirements.

Visit NIX at http://nix.nasa.gov

Project Management and System Analysis Tools on STI Webpage

Following recent events within NASA, the STI Program has added additional information to its website at http://www.sti.nasa.gov. System analysis tools include information on failure modes and effects analysis, fault tree analysis, and probabilistic risk assessment. Additional information has been added on program management and project planning.

Links have also been added to NASA's Technology Database and Lessons Learned Database.

New STI Products Found Useful:

Four new products, recently released by the STI Program, are finding their way not only to NASA organizations but also to government agencies and companies. These products include the *NASA Aerospace Science and Technology Dictionary*, the *NASA Scope and Subject Category Guide*, *Aerospell* (a spellcheck tool), and *Building on the Shoulders of Giants*. For more information, see the STI webpage's New Products button.

For more information, vistit http://www.sti.nasa.gov

CASI Lexicographer Presents Talks to Two International Audiences in Switzerland

Michael Genuardi, the lexicographer at CASI, traveled to Switzerland to deliver two lectures on current and future technologies for computer-supported indexing. The lectures were presented to international audiences as part of a special series of invitational talks sponsored by CERN (European Organization for Nuclear Research), the Swiss National Library (SNL), and the Association of International Librarians and Information Specialists (AILIS).

The talks reviewed the various strategies for providing subject indexing in the context of evolving technologies for intelligent text analysis. As part of the presentations, four operational systems were described, including the NASA Machine Aided Indexing tool--a variation of which is currently being developed by CASI for web access.

Attendees included representatives from several international organizations and commercial companies including the World Health Organization, UNESCO, the World Intellectual Property Organization, the International Labour Organization, the Swiss Federal Institute of Technology (EPFL), Institut d'informatique-UNIL, the United Nations Office of the High Commissioner for Human Rights (OHCHR), SICPA, and others.

Mr. Genuardi also took the opportunity to meet with the technical information program staff from CERN in Geneva. The CERN staff provided an overview of the CERN library operations, and discussed some current development projects, including a research project to automatically extract keywords and phrases from document titles and a method for capturing metadata from open literature sources listed at external sites.

Four New STI Products Currently Available:

- **NASA Thesaurus on CD-ROM**

  The *NASA Thesaurus*, previously published every three years as a print product, is now available on an annual basis as a CD-ROM product. The layout and content is the same as the printed publication, with the exception that it is fully updated to January 2000. Future issues will be updated annually. The scope of the controlled vocabulary includes aerospace engineering, plus supporting disciplines of engineering and physics, the natural space sciences (astronomy, astrophysics, planetary science), earth sciences, and to some extent, the biological sciences. The Hierarchical *Listing with Definitions* contains over 17,900 subject terms, 3,948 definitions, and more than 4,000 USE cross-references. The *Rotated Term Display* is a ready-reference tool, which provides over 21,500 additional "access points" to the *Thesaurus* terminology arranged in a key-word-in-context (KWIC) index.

  The CD-ROM product is in PDF format, allowing browsing and navigation using a sidebar outline and links to each alphabetic section, as well as printing. The product provides easy, portable access to the two volumes: *Volume 1: Hierarchical Listing With Definitions* and *Volume 2: Rotated Term Display*.

  Document ID: 200026924
  Available on CD-ROM for:
  U.S.: $187.00
  International: $374.00

- **Electronic Data Files of *NASA Thesaurus* Vocabulary**

  An electronic data file, the *NASA Thesaurus Term List*, contains the alphabetical listing of over 17,900 authorized terms from the *NASA Thesaurus*. (hierarchies, definitions, and cross references are not included). The list is provided as an electronic file in text format (file size ~308 KB). This product is available as a single issue; annual updates are available at a separate cost upon request. Terms and conditions apply.

  Document ID: 20000032612
  Available for:
  U.S.: $209.00
  International: $418.00

- ***NASA Hierarchical Listing* (Data File for Site Usage)**

  As an electronic data file, the *NASA Thesaurus Hierarchical Listing*, is comprised of the valid terms and hierarchies, nonpostable USE references, and related terms contained in the *NASA Thesaurus*. The *Hierarchical Listing* is provided as an electronic file in tagged text format (file size ~5.57 MB). The customer marks each element of the listing with an identifying tag for easy manipulation. This product is available as a single issue; and annual updates are available at a separate cost upon request. Terms and conditions apply..

  Document ID: 20000032611
  Available for:
  U.S. $495.00
  International $990.00

- **RTO Publications on CD-ROM**

  In an effort to move toward electronic distribution of NATO's Research Technology Organization (RTO) publications, RTO and CASI combined efforts to provide NATO-related STI on CD-ROM. Beginning in April 2000, RTO provided CASI with two print copies and two CD-ROMs of each RTO publication. CASI then provided for duplication of the CD-ROMs and distributed these copies to registered users. Now RTO publications, previously available only in microfiche and print format, are available from CASI as a CD-ROM product.
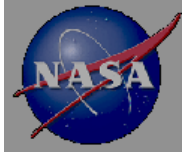
  Single CD-ROM available for:
  U.S.: $33.00
  International: $66.00

  See NASA the STI Home Page for additional price information at http://www.sti.nasa.gov

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NIX--"Site of the Week"

In May, the CNN Weekly Space Update featured NIX as its "Site of the Week.

Visit the NIX website at http://nix.larc.nasa.gov

...STI Program Plan

In part, the NASA STI Program states, "The NASA Scientific and Technical Information Program is an integral part of NASA's future. The program supports the Agency's missions to communicate scientific knowledge and understanding to help transfer NASA's research and development to the aerospace and academic communities.... By ensuring a fast, two-way process of internal and external information exchange, the STI Program helps NASA avoid duplication of research, time, and cost and to make its wealth of information available to benefit its customers.... Each Center is responsible for acquiring, tracking, and producing, or having produced, NASA STI related to their Center mission; and for ensuring that Center STI reaches the STI Database [at the NASA Center for AeroSpace Information]."

To that end, each NASA Center executes the STI Program mission and objectives by way of a team of individuals that applies professional publishing standards to all scientific and technical information passing through its doors. Whether the information will result in a document to be distributed through the traditional print and mail process or an electronic document available on the Internet--or both--the team is responsible for making it happen, going through the process step-by-step with each customer. For information about the STI Program at any NASA Center, visit http://www.sti.nasa.gov.
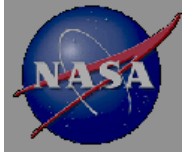
...From Dryden Research Center

STI Manager Retires

NASA's Dryden STI Manager Linda Quinby retired on June 16th after over 23 years of Government service. She began her career as an Engineering Aide with the Army Aviation Test Activity during her college years. In 1976 she came to Dryden as a Technical Editor, and in 1982 became the Chief of the Dryden Reports and Presentations Branch. In 1990, she moved to the Research Facilities Directorate as the Contract Technical Manager. Most recently she was the Lead for the Contract Management Group, which included responsibility for several Center contracts, as well as the Dryden STI Program. Her immediate plans include relaxing, sailing, and completing various home projects, and taking a trip to Australia in October. Later plans include some combination of writing, teaching, consulting, and enjoying life. She sends her best wishes and thanks to all her STI colleagues for the wonderful friendships over the years.
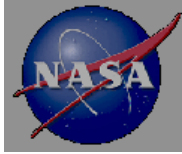
Glenn Releases Research & Technology 1999 Report

The NASA Glenn Research Center at Lewis Field announces the release of Glenn's Research & Technology 1999 report (NASA/TM2000-209639) in print, HTML, and PDF formats. This document comprises 130 short articles written by staff scientists and engineers. It summarizes many FY1999 research accomplishments at Glenn, which are organized into the broad categories of aeronautics, research and technology, space, and engineering and technical services.

The articles describe advancements ranging from new or improved testing techniques, equipment, and facilities; to the release of state-of-the-art software for modeling aerospace materials and structures; to test results from engineering rigs, wind tunnels, icing wind tunnels, and microgravity platforms; to commercial applications such as removing soot from fire-damaged artwork and using a low-level laser for the early diagnosis and analysis of cataracts. Most articles are illustrated with photographs, graphs, or drawings, many of which appear in color in the HTML version. Author names and technical contact information are provided at the end of every article.

The printed document is available from the NASA Center for Aerospace Information and from the National Technical Information Service. The PDF and HTML versions can be downloaded from http://www.grc.nasa.gov/WWW/RT/, where six years of Glenn's Research & Technology reports are now available.
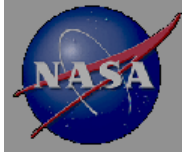
...From Goddard Space Flight Center

TISB Preparing NIX Collection

TISB at the Goddard Space Flight Center under a grant from the STI program is currently working on preparing a historical photo collection of the Wallops Flight Facility and Goddard for the NASA Image eXchange (NIX). TISB will optimize a collection of 150 images representing the 40-year history of the Center and make the collection available online to the public via NIX and CD format.

This photo collection was assembled for the recently printed NASA Special Publication *Dreams, Hopes, Realities: NASA's Goddard Space Flight Center, The First Forty Years* (SP-4312). While significant work went in to assembling this collection for print, additional work will be needed to make a quality electronic media product.

TISB will produce each image in five resolutions (industry standard) for both online and CD use, ensuring appropriate resolution for any application. In addition, experts will furnish more detailed captions to provide context for the images because the user will not have the book itself. Finally, TISB will develop a searchable, self-running catalog for the CD with captions and thumbnails, the equivalent of the data fields in NIX.

The photos will serve as a unique agency-wide resource. The already collected images comprise a rare aggregation of historical importance and will have a significant impact as a public relations and educational tool for NASA. Moreover, the process will serve to establish agency collection specification standards and handling procedures.

...From NASA's Jet Propulsion Laboratory
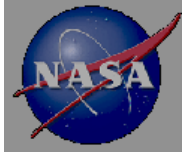
On May 19, 2000, the JPL Associate Director Kirk Dawson and Owner of the Process Domain Provide Enabling Services announced the formation of a new subdomain entitled Knowledge Management with the following appointments: James Doane was named Knowledge Management Subdomain Leader. The JPL STI Manager Linda Kosmin was named Owner of the Develop Knowledge Process. Laif Swanson was named Owner of the Distribute Knowledge Process, and Yolanda Oliver was named Owner of the Organize Knowledge Process.
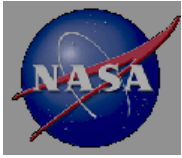
NASA HISTORY BOOK WINS PENDLETON PRIZE

Glen Swanson, NASA's historian at the Johnson Space Center, was recently awarded the George H. Pendleton Prize by the Society for History in the Federal Government for his editing efforts on *Before This Decade Is Out: Personal Reflections on the Apollo Program* (NASA: NASA History Office). The book contains personal oral accounts, the majority of which came from the JSC Oral History Project, as well as biographical introductions and interviews of people who were involved in the Apollo Program at JSC. It also contains oral recollections from James Webb, who served as NASA's administrator in the early days of human space flight, as well as excerpts from Wernher von Braun, Robert Gilruth, and astronauts Charles Duke and Harrison Schmitt.

The Pendleton Prize commemorates Ohio Senator George H. Pendleton, sponsor of the 1883 Civil Service Reform Act that bears his name. This is the second year that this prize has been awarded. Swanson received the award on March 16 during the Society for History in the Federal Government's annual spring meeting held this year at the Library of Congress in Washington, DC.

NEW NASA HISTORY PUBLICATIONS

- *Computers Take Flight: A History of NASA's Pioneering Digital Fly-By-Wire Project*

  We are pleased to announce the publication of *Computers Take Flight: A History of NASA's Pioneering Digital Fly-By-Wire Project* (NASA SP-2000-4224) by James E. Tomayko. This book details the story of the historic digital fly-by-wire system that operated without mechanical back-up on the F-8C aircraft. This successful project gave industry the confidence to develop similar digital systems on a number of military and commercial airplanes such as the F-16, F-18, and the Boeing 777. The F-8 digital fly-by-wire program contributed a solid base of techniques, as well as strong evidence that such a digital system could overcome real faults and continues to fly successfully. To purchase a copy of this hardcover book contact the Government Printing Office or the NASA Information Center. Order GPO Stock Number #033-000-01220-9. The price is $26.00.

- *NASA Historical Data Book: Volume VI*

  Volume VI of the *NASA Historical Data Book* (NASA SP-2000-4012) was also recently published. This volume, compiled by Judy A. Rumerman, is a continuation of the five previous volumes in the data book set that have covered the two previous decades of NASA's existence. A fundamental reference tool, this new work presents information, much of it statistical, documenting the development of critical areas of NASA responsibility for the period between 1979 and 1988. This volume includes detailed information of Space Applications, Aeronautics and Space Research and Technology, Tracking and Data Acquisition/Support Operations, Commercial Programs, and Resources. This book is $46.00 (domestic postpaid) ($57.50 internationally), from the US Superintendent of Documents. By mail: U.S. Government Printing Office, Documents Warehouse, 8610 Cherry Lane, Laurel, Maryland, 20707. By phone: (202) 512-1707 ext. 30273.

- *Hypersonics Before the Shuttle: A Concise History of the X-15 Research Airplane*

  Now available is *Hypersonics Before the Shuttle: A Concise History of the X-15 Research Airplane* (NASA SP-2000-4517) by Dennis R. Jenkins. This monograph is the first history of the X-15 to capture the design, development, operations, and lessons learned of the most productive flight research program ever undertaken. Though not initially developed to support human space travel, the X-15 contributed to both Apollo and Space Shuttle operations. If you are interested in obtaining a copy of this monograph please send a self-addressed stamped 9"x12" envelope to NASA History Office, NASA Headquarters, Mail Code ZH, Washington DC, 20546.

NEW NASA HISTORICAL INFORMATION ONLINE

- *Suddenly, Tomorrow Came...*

  In 1993 NASA published a history of the Johnson Space Center entitled *Suddenly, Tomorrow Came...* (NASA SP-4307), by Henry C. Dethloff. It is now available online through the JSC homepage. The direct URL address for this publication is http://www.jsc.nasa.gov/pao/public/history/tomorrow/index.html on the web.

- **Augustine Commission Report**

  We are pleased to announce the addition of three new policy documents to the NASA History website. The full Augustine Commission Report is now available through a link at http://history.nasa.gov/augustine/racfup1.htm on the web. President Reagan's remarks on the Space Station from his State of the Union message on January 25, 1984 are also now available at http://history.nasa.gov/reagan84.htm, as well as President Nixon's January 5, 1972 announcement on the development of the Space Shuttle at http://history.nasa.gov/stsnixon.htm on the web. All of these documents can be found on the history site at http://history.nasa.gov/spdocs.html on the web. Our special thanks to Marcus Lindroos, who formatted these documents.

- **Apollo 15 Flight Journal**

  David Woods has done a major updating of the Apollo 15 Flight Journal. Three new sections cover the time through lunar orbit rendezvous, LM jettison, and the crew's subsequent day of rest. An essay on the techniques of LOR (Lunar Orbit Rendezvous) by Frank O'Brien can also be seen. There are many other small improvements to previous sections and many photographs from the mission have been added. Our thanks to David Woods and Frank O'Brien who developed and maintain this site at http://history.nasa.gov/ap15fj/ on the web.

- **History of the NASA Logo**

  We have placed on the NASA History website the history of the NASA logo, known to all inside the agency as the "meatball." This site is replicated from a similar one located at the Glenn Research Center, where James Modarelli designed the logo in 1959. The executive secretary of the National Advisory Committee for Aeronautics (NACA), NASA's predecessor agency, asked Mr. Modarelli to design a logo that could be used to represent the new agency. You may find this information, as well as a link to the NASA logo usage guidelines, at http://history.nasa.gov/meatball.htm on the web.

- **Historical Background of Martian Exploration**

  The NASA History website has been updated to include an extensive chronological background of Martian exploration. This site also has several links to more information on different NASA Martian missions and can now be found at http://history.nasa.gov/marschro.htm on the web. The online version of the Young Report and other recent assessments of NASA's Martian exploration efforts can now be explored at http://www.nasa.gov/newsinfo/marsreports.html on the web.

- ***Introduction to the Aerodynamics of Flight***

  Introduction to the Aerodynamics of Flight (NASA SP-367, 1975) is now online at http://history.nasa.gov/SP-367/cover367.htm on the web. While not in the formal NASA History Series, this book, by Theodore A. Talay of the Langley Research Center is an excellent primer on aerodynamics that includes many useful diagrams and drawings. A very special thanks goes to Chris Gamble, who scanned this publication and set up all the JPG and HTML files for web viewing.

- ***Toward Mach 2: The Douglas D-558 Program***

  Toward Mach 2: The Douglas D-558 Program (NASA SP-4222, 1999) is now online at http://www.dfrc.nasa.gov/History/Publications/D-558/ on the web. This book features the transcript of presentations at a conference honoring the remarkable contribution that the D-558-1 Skystreak and the D-558-2 Skyrocket made in the area of transonic research in the 1940's. Thanks to Monroe Conner and Dill Hunley, who are responsible for posting it to the web.

- ***The Partnership: A History of the Apollo-Soyuz Test***

  The Partnership: A History of the Apollo-Soyuz Test (NASA SP-4209) is a book that traces all of the events that led to the cooperative Apollo-Soyuz flight. The book, including newly added images to the web version, may now be viewed at http://www.hq.nasa.gov/office/pao/History/SP-4209/cover.htm on the web. Special thanks to Chris Gamble who just recently added the images on the website, and to David Woods who formatted the original text document.

  Visit the NASA History Office website at http://history.nasa.gov/
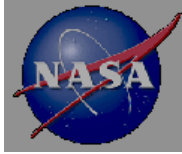
...The NASA Commercial Technology Program *An Overview*
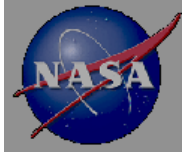
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NASA Commercial Technology Network (NCTN)

The NASA Commercial Technology Program encompasses a national network of specialized centers and organizations that assist U.S. businesses and industry in accessing, utilizing and commercializing NASA-funded research and technology. The organizations work closely with each other to provide a full range of technology transfer and commercialization services and assistance. The NASA Commercial Technology Network (NCTN) consists of the Commercial Technology Organizations at each of the NASA field centers, the Jet Propulsion Laboratory, the National Technology Transfer Center (NTTC), the six Regional Technology Transfer Centers (RTTCs), NASA Tech Briefs, UNISPHERE, and other specialized organizations and services. All are dedicated to fostering dual-use technology partnerships and the transfer and commercialization of NASA-sponsored research and technology.

The NCTN provides access to a wide variety of information resources that can be searched and consulted for research and technology, patents, technical expertise, and R&D facilities, as well as for technology partnering, licensing, and commercialization opportunities. In addition to serving as an integrated information resource, the NCTN is developing into an electronic marketplace for NASA-sponsored technology, facilitating communications, transactions, and partnerships between NASA and the U.S. private sector.

Visit the NCTN website at http://nctn.hq.nasa.gov for more information on the NASA Commercial Technology Program and the members of its network.

Spinoff

About *Spinoff*

NASA's premier publication, *Spinoff*, features over 40 companies annually that have successfully utilized NASA technology in commercial products and processes. The main purpose of the publication is to generate greater awareness of the practical benefits resulting from the nation's investment in aerospace research and development.

Each year NASA distributes tens of thousands of *Spinoffs* through trade shows, conferences, and special requests. The *Spinoff* website, located at http://www.sti.nasa.gov/tto/spinoff.html, includes a searchable database with an entry for every article, as well as manufacturer information for articles published since 1986. Online versions of Spinoff 1996, 1997, 1998, and 1999 can also be accessed through this site.

The *Spinoff* publication focuses on NASA's contributions to areas in the private sector, including health and medicine, transportation, public safety, home and recreation, environment and resources, computer technology, and industrial productivity.

The *Spinoff* team welcomes new information regarding companies with successfully transferred NASA technology into the development of a commercial product. If you know of any companies that have done so, please contact the *Spinoff* editors, Ms. Zoë Rush at zrush@sti.nasa.gov, telephone (301) 621-0244, or Mr. David Ferrera at dferrera@sti.nasa.gov, telephone (301) 621-0242.

To receive a printed copy of *Spinoff*, please contact the National Technology Transfer Center (NTTC) at (800) 678-6882 or visit the NTTC website at http://www.nttc.edu.